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In re Patent Application of:
RUAT ET AL.
Serial No. 10/824,932
Confirmation No. 7552
Filed: APRIL 15, 2004

FEB 01 2008

REMARKS

Applicants would like to thank the Examiner for the thorough examination of the present application. The independent claims have been amended to more clearly define the present invention over the cited prior art references. Support for the claim amendments may be found in paragraph 33 in the Applicants' specification. The claim amendments and arguments supporting patentability of the claims are provided below.

I. The Amended Claims

The present invention, as recited in amended independent Claim 1, for example, is directed to an asynchronous frame receiver comprising an input to receive asynchronous frames comprising standard characters, and a header comprising a break character with a data bit length greater than a data bit length of the standard characters. A first state machine is configured as a break character detection unit to detect the break character, and a second state machine is configured as a standard character processing unit to detect the standard characters. The first and second state machines may be further configured so that in a first operating mode only the standard character processing unit is to operate, and in a second operating mode both the first and second state machines are to operate, with the break character detection unit to activate the standard character processing unit after the character break has been detected.

An advantage of the claimed invention is that the first and second state machines may be used to provide two operating

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modes in an asynchronous frame receiver. For example, the first operating mode may be a conventional operating mode in which only the second state machine is active. The second operating mode may be an operating mode dedicated to protocols of the LIN type, providing a break character BRK in a frame beginning. In the second operating mode, both state machines may be used in which the first state machine activates the second state machine after a character BRK has been detected.

Independent Claim 10 has been amended similar to amended independent Claim 1, and is directed to a microcontroller comprising a universal asynchronous receiver transceiver (UART).

Independent Claim 18 has been amended similar to amended independent Claim 1, and is directed to method for processing asynchronous frames in an asynchronous frame receiver.

II. The Claims Are Patentable

The Examiner rejected independent Claims 1, 10 and 18 over the Gulick et al. patent in view of the Applicants' Admitted Prior Art, in view of the Sexton et al. patent, and in further view of the Hong et al. patent.

The Examiner cited Gulick et al. as disclosing an asynchronous frame receiver comprising a break character detection unit 412 (FIG. 21) for detecting the break character. The Examiner has taken the position that Gulick et al. also discloses a standard character processing unit for detecting standard characters.

As correctly noted by the Examiner, Gulick et al. fails

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to disclose an input for receiving asynchronous frames comprising standard characters, and a header comprising a break character with a data bit length greater than a data bit length of the standard characters. The Examiner referenced paragraph 5 and FIG. 1 in the specification (Applicants' Admitted Prior Art) as disclosing a header comprising break and standard characters.

The Examiner cited Sexton et al. as disclosing a header comprising a break character with a data bit length greater than a data bit length of the standard characters (column 3, lines 27-31). The Examiner correctly noted that Gulick et al. fails to disclose a break character detection unit comprising a first state machine, and wherein the standard character processing unit comprises a second state machine.

The Examiner cited Hong et al. as disclosing in FIG. 22 a state machine comprising a break character detection unit 198 and a standard character processing unit 202 (column 38, lines 1-41). As correctly noted by the Examiner, Hong et al. discloses that units 198, 202 are in a single state machine instead of separate state machines as in the claimed invention, but the Examiner references MPEP 2144.04 which states that separating elements to obtain the same function is not considered patentable, particularly if no new and unexpected result is produced.

The Applicants submit that even if the references were selectively combined as suggested by the Examiner, the claimed invention is still not produced. In particular, the references fail to disclose two different operating modes for separate state

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machines. As recited in the claimed invention, the first and second state machines are further configured so that in a first operating mode only the standard character processing unit is to operate, and in a second operating mode both the first and second state machines are to operate, with the break character detection unit to activate the standard character processing unit after the character break has been detected:

As noted above, an advantage of the two operating modes is that the first operating mode may be a conventional operating mode (in which only the second state machine is active), and the second operating mode may be an operating mode dedicated to protocols of the LIN type, for example, providing a break character BRK in a frame beginning. In the second operating mode, both state machines may be used in which the first state machine activates the second state machine after a character BRK has been detected.

Since Hong et al. discloses a single state machine providing a break character detection unit 198 and a standard character processing unit 202, Hong et al. simply fails to teach or suggest two separate state machines operating in two different modes as in the claimed invention.

Accordingly, it is submitted that amended independent Claim 1 is patentable over the Gulick et al. patent in view of the Applicants' Admitted Prior Art, and further in view of the Hong et al. patent. Amended independent Claims 10 and 18 are similar to amended independent Claim 1. Therefore, it is submitted that these claims are also patentable over the Gulick

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et al. patent in view of the Applicants' Admitted Prior Art, and further in view of the Hong et al. patent.

In view of the patentability of amended independent Claims 1, 10 and 18, it is submitted that the dependent claims, which include yet further distinguishing features of the invention are also patentable. These dependent claims need no further discussion herein.

III. CONCLUSION

In view of the amendments to the claims and the arguments provided herein, it is submitted that all the claims are patentable. Accordingly, a Notice of Allowance is requested in due course. Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,


MICHAEL W. TAYLOR
Reg. No. 43,182
Allen, Dyer, Doppelt, Milbrath
& Gilchrist, P.A.
255 S. Orange Avenue, Suite 1401
Post Office Box 3791
Orlando, Florida 32802
407-841-2330

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CERTIFICATE OF FACSIMILE TRANSMISSION

I HEREBY CERTIFY that the foregoing correspondence has been forwarded via facsimile number 571-273-8300 to the Commissioner for Patents on this 1 day of February, 2008.

M.L Taylor